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# Essentials of *Applied* Quantitative Methods for Health Services Managers

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# Preface

Health services managers require a varied repertoire of skills and expertise, including both qualitative and quantitative elements. The purpose of this book is to bring numerous quantitative methods from other fields, including industrial engineering, operations research, finance, and general systems analysis into the health services arena, and enhance the quantitative skill set of health administration students. The content and “tone” of the book are the result of working with undergraduate and graduate health management students at the University of New Hampshire, as well as elsewhere. The book builds upon our experience that many students lack confidence in their quantitative abilities, and as a result develop a somewhat incomplete set of skills.

The book assumes a basic understanding of algebra, statistics, and financial and managerial accounting as well as familiarity with economics, healthcare organizations, and health services management. Based upon these foundation competencies, quantitative methods are presented within a health services administration context. Every effort has been taken to avoid clouding these methods behind algebraic or quantitative curtains. When doubts exist, we have simplified our presentation. This book is not meant to take the place of more advanced texts in any of the techniques of quantitative analysis presented here. Although the array of quantitative methods presented in the text is somewhat eclectic, the topics selected share the characteristic of being routinely used by health services managers. Intentionally, the book includes basic concepts and foundations—it is essential that students grasp these basics before moving on to applying more advanced analytical tools. As such, the book is not intended to expand a student’s ability to perform health services research.

Our experience also suggests that learning and being able to use quantitative methods require learning experiences designed as loops, not straight lines. Basic points, terms, and calculations need to be repeated to be effectively incorporated into the student’s repertoire. Assuming that students possess complete recall of an earlier course in statistics, for example, is an instructional blunder that jeopardizes the effectiveness of a professor as well as the ability of students to learn.

Most of the quantitative applications presented can be completed using a general spreadsheet program. However, we have avoided particular software applications and instructions on how to use specific spreadsheet programs. After gaining a firm understanding of the mathematical concepts underlying the quantitative tools presented, students are encouraged to use suitable computer (or even calculator) programs; we feel it is important to gain this firm conceptual understanding first, however. In addition to introducing (or in some cases reviewing) quantitative concepts, the book provides students with an example of application of these tools within the context of completing an external assessment component of a strategic plan. It is hoped that this application provides students with a view of how the quantitative tools are used in practice.

*Essentials in Quantitative Methods for Health Services Managers* emerged from the interests of three professors searching for a more effective approach to teaching students how to use quantitative methods as health services managers. Students deserve special recognition for helping us through the years to appreciate the difference between teaching and learning quantitative methods and for assisting in determining effective teaching and learning strategies. Throughout this book practice as well as understanding is stressed. It is our conclusion that students are better able to incorporate these methods into their professional repertoires when they have had the opportunity to experience and apply these methods in a context related to their professional interests. Exercises have been incorporated into each chapter for students to use to experience a specific method. When we use this book, students are often required to turn in assigned exercises as their ticket into a specific class. Reading about a quantitative method is not the same as using the methods to solve a realistic health services management problem.

Ultimately, of course, developing the comprehensive repertoire of skills needed to be a competent manager of health services is a student's responsibility; doing this is a complex, ambiguous, and challenging endeavor that spans a career. No single collection of quantitative methods is sufficient to meet this challenge. Hopefully, however, this collection will assist many in developing their basic repertoire.

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